MEMORANDUM

To: Mayor and Members of the City Council

From: Montrè Freeman, City Manager
Dwan Bell, Public Utilities Director

Date: December 10, 2022

Re: Consideration for Infrastructure Improvements – I&I and EAA (Find and Fix It)

BACKGROUND:

1. <u>Infiltration and Inflow</u>

WithersRavenel and Timmons Group have jointly studied the wastewater collection and treatment system to provide a high-level overview of current City needs and recommended next steps to ensure a predictable future for our wastewater infrastructure. Deficiencies in the wastewater collection system cause rainwater and groundwater (infiltration & inflow) to enter the system. The infiltration & inflow have many negative impacts on the City's wastewater system. It is unnecessarily treated at the wastewater treatment plant (WWTP), which increases operational costs and consumes a portion of plant capacity that could otherwise be used for City growth. Infiltration & inflow create high flow rates during rain events that tax both the collection system and WWTP and, on occasion, lead to surface water discharge violations with the North Carolina Department of Environmental Quality. The WWTP was not designed to operate under these sustained, high flow conditions. Based on this analysis, the recommended initial effort to reduce I&I will be in the vicinity of the Main lift station and Pearl Street lift station basins. Additionally, due to the assumed age of the sewer system around the Main lift station and historical discharge into the nearby Pasquotank River, there is an increased potential of direct non-sewer inflow into the sewer system from roof drain connections and stormwater cross connections. **To lower inflow into the system and better detect these non-sewer connections and dilapidated piping, it is recommended to survey flow monitoring, perform smoke testing, CCTV (Closed Circuit Television) and Manholes Assessments to design plans and execute construction at a sum of $659,000.**

2. Engineering Alternative Analysis

An Engineering Alternatives Analysis (EAA) is required with any NPDES application for a new or expanding wastewater treatment plant discharge, in accordance with 15A NCAC 2H.0105(c)(2). In order for an NPDES application to be approved, the EAA must provide complete justification for a direct discharge to surface water alternative, and demonstrate that direct discharge is the most environmentally sound alternative selected from all reasonably cost-effective options [per 15A NCAC 2H.0105(c)(2)].

Based on this requirement and the review of two Preliminary Engineering Reports for the Wastewater Treatment Plant and the distribution system – Public Utilities prioritized an EAA (engineering alternatives analysis) governed by G.S. 143-64.31 via the Mini-Brooks Act QBS process (Quality Based Selection). Timmons Group and WithersRavenel is to build upon the analysis for submission as required by North Carolina Division of Water Resources to ultimately obtain relief from 80% threshold at a fee of $50,000.

ANALYSIS:

The Council's proficient examination, support, and buy-in of the detailed infrastructure improvements above and/or continuation of are merited for resolution. These expenditures are critically required, and both professionally and strongly encouraged to sustain line integrity and the City's long-term methodical CIP investments.

STAFF RECOMMENDATION:

By motion, approve Engineering Alternatives Analysis (EAA) as required with any NPDES application ($50,000), and conduct Pearl Street & Main Street surveys, permitting, testing, and repairs ($659,000), totaling $709,000.